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ABSTRACT

This is the first of a series of bulletins dealing with various aspects of the activities of the open-space schools project. This project engages in research related to the planning, design, and use of open-space facilities for use in establishing a common frame of reference for future research and development; helping educators, planners, architects, and others make decisions related to school development and operation; and designing solution strategies for common problems. This issue contains information gathered in the first phase of the project regarding the general nature of open-space schools, the national development trends, some reasons for development, and the areas of concern. A related document is EA 003 897. (Author)

OPEN-SPACE SCHOOLS PROJECT

BULLETIN

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In the spring of 1969 a group of principals representing a Bay Area Consortium of open-space schools met at the School Planning Laboratory to discuss the possibility of carrying out a research project aimed at gathering and disseminating information related to open-space schools. It was apparent that as interest in open-space schools grew and as an increasing number of schools were constructed, information concerning common practices and concerns was needed. Consequently Educational Facilities Laboratories made a grant to the School Planning Laboratory for the purpose of funding the Open-Space Schools Project.

The basic purpose of the project is to conduct research related to the planning, design and use of open-space facilities that will be useful in

- (1) establishing a common frame of reference for future research and development,
- (2) helping educators, planners, architects and other groups with decisions related to school development and operation, and
- (3) designing solution strategies for common problems.

Eight San Francisco Bay Area superintendents whose school districts have pioneered the development of open-space schools comprise the project's Advisory Committee. With a total of 39 open-space schools in their districts, these superintendents are providing valuable insight and direction in identifying and developing project activities.

This is the first of a series of occasional project Bulletins that will deal with various aspects of project activities. The Bulletin will be distributed to those persons currently receiving SPL REPORTS. The project will also generate special reports from time to time that will deal with specific research problems and topics. These will be produced in a limited quantity and will be available upon request.

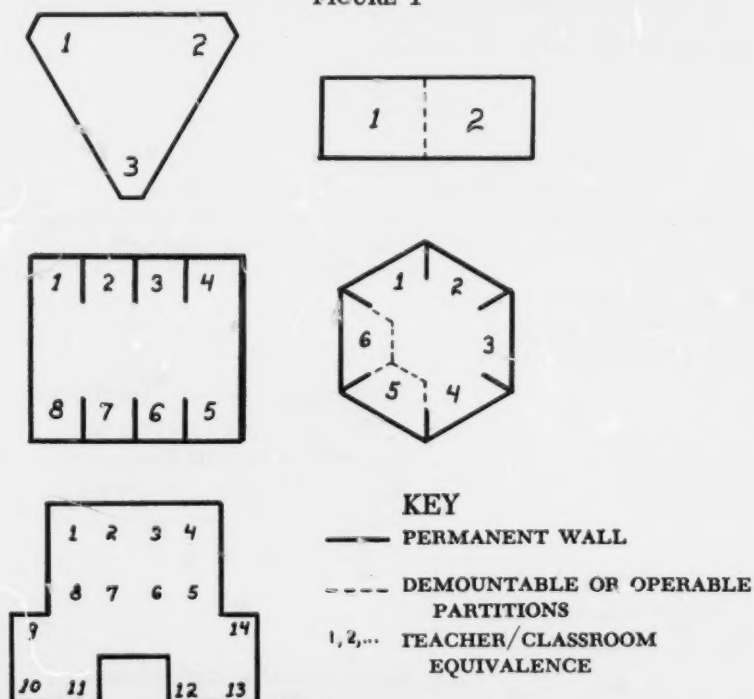
This first issue of the Bulletin contains information from the exploratory first phase of the project. The aim of this initial phase of the project has been to systematically draw together information about the general nature of open-space schools, national development trends, reasons for development, and areas of concern. It is hoped that this information will provide a basic point of reference about the state of the art and help to answer many questions and clarify certain ambiguities that have developed over the years.

A total of 30 school districts located in Arizona, California, Colorado, Utah and four eastern states have cooperated in this phase of the project. With over 120 open-space schools in those districts, we feel that information was secured from a representative sample of open-space schools. Forty-three state department of education school planners also cooperated in this phase of the study.

What is Open-Space?

The question of what constitutes "open-space" has certainly been subjected to much discussion. Generally open-space has come to describe schools lacking interior partitions in which the visual and acoustical separation between teaching stations and classroom areas is limited or eliminated. The degree to which instructional space can be considered "open" depends upon two factors: the size of the space and the use of partitions. Basically space becomes increasingly open as (1) the size increases and (2) the use of partitions decreases.

FIGURE 1



The wide variation in what is considered to be open-space is exemplified by the schools in our research sample. Superintendents identified the schools by indicating which schools in their district were considered to be "open-space." Some representative examples of what constitutes open-space in these schools are presented in Figure 1.

The buildings included those having undergone minor renovation with the partial removal of walls between classrooms, those with partial walls of permanent construction, those using operable or demountable partitions, and those with no partitions at all. Some schools had additional "resource" or "commons" space within open instructional areas. Many schools are composed of a series of separate buildings while others contain instructional space under a common roof.

Although the specific design configurations of open-space schools vary considerably, most have combined conventional classroom floor areas into what one superintendent described as "larger self-contained boxes." The floor plans of 90 buildings in our sample and 60 additional floor plans that were collected from several architects were analyzed to determine which trends have been established in the size of open instructional areas. Equivalent classroom spaces and designated teaching stations were the criteria used in the analysis.

The most common practice has been to create instructional areas by forming "pods," "classroom clusters," or "big rooms" that accommodate a definite number of teachers and class groups, usually ranging from two to nine. Seventy-five percent of the schools in the survey were composed of several "pods" of the same size. The most common arrangements were areas equivalent to three classrooms, followed by six, four and five in that order. Few schools were composed of instructional areas of two, seven, eight or nine equivalent classrooms. It is noted that groupings of three equivalent classrooms are more characteristic of the older schools than the newest schools.

Eleven percent of the schools were also composed of open "pods" but of variable size in various combinations. Examples of specific schools included 2-4-8, 3-6, 2-4, and 4-6 combinations of equivalent classrooms.

TABLE 1.

DISTRIBUTION OF SCHOOLS ACCORDING TO SIZE OF OPEN-SPACE INSTRUCTIONAL AREA^a

Type and Size of Open Instructional Space	Percent
Schools composed of several "Pods" or "Classroom Clusters" of the same size	
Equivalent to three classrooms	23
Equivalent to six classrooms	18
Equivalent to four classrooms	16
Equivalent to five classrooms	9
Equivalent to two, seven, eight or nine classrooms	8
Schools composed of several "Pods" or "Classroom Clusters" of variable size	
Equivalent to combinations of two to eight classrooms	11
Schools composed of areas of undifferentiated open-space	
Equivalent to ten or more classrooms	

Fifteen percent of the schools were composed of large areas of undifferentiated space equivalent to ten or more classrooms. The size of these areas ranged up to one school with an equivalent of twenty-eight classrooms in one open instructional area. The schools in this group are among the newer schools in the sample.

A National Survey

It is generally recognized that some states such as California have set the pace in the development of open-space schools. To determine what the trend has been nationally, a questionnaire was sent to the directors of school planning services in each state and the District of Columbia. Of the fifty-one questionnaires, forty-three were returned.

Each state director was asked to indicate the number of new elementary, middle-junior high, and high schools that had been constructed in his state during the last three years. The schools were placed into three design categories: *open*, *modified* and *conventional*. Although more information was provided with the questionnaire, the categories were basically defined in the following manner:

Open: Buildings that have the equivalent of at least *three* normal classrooms combined to form one common instructional area that *cannot be divided* by a floor-to-ceiling partition system. (This did not eliminate larger areas such as a six teacher pod with operable partitions as long as three adjacent teaching spaces could not be separated.)

Modified: Buildings that have floor-to-ceiling partition systems that divide instructional space into areas equivalent to one and two classrooms or that systematically provide lateral visual separation between adjacent classrooms. (This category was aimed mainly at those open plan buildings that made extensive use of operable partitions or those using permanent walls to separate adjacent spaces into "three-walled classrooms.")

Conventional: Buildings composed of separate instructional spaces designed to accommodate only one teacher and one class group. (Schools basically composed of standard-size, four-walled classrooms.)

Although both "open" and "modified" buildings are essentially open-space types, it was felt that a basic distinction should be made between buildings which did not make extensive use of partitions to seal off classrooms and those buildings that are commonly referred to as "flexible" or "modified" open-space, which increase visual and acoustical separation through the use of partitions. The results of the survey are presented in Table 2.

TABLE 2.

DISTRIBUTION OF NEW SCHOOL CONSTRUCTION IN THREE DESIGN CATEGORIES^a 1968-69

	Open	Modified	Conventional	Total Number
Elementary schools	25%	29%	46%	1,552
Middle/jr. high schools	19%	33%	48%	429
High schools	14%	38%	48%	643

^a Based on responses from 43 of 51 questionnaires sent to state directors of School Planning (including District of Columbia).

As can be seen in Table 2, over 50% of all new schools constructed within the last three years have been of open design ("open" or "modified"). Trends varied, however, from state to state. A sampling of some of the states revealed the following information:

North Carolina—although only 20% of the elementary schools were classified as "conventional" 80% of the high schools were.

Minnesota—only 8 of 91 schools were placed in the "conventional" category.

Oklahoma—all 100 schools constructed in the last three years were estimated to be "conventional."

Oregon—41 of 72 schools were placed in the "modified" category.

Wisconsin—only two (both high schools) of 107 new schools were placed in the "conventional" category.

New York—only 19% (39 of 209) of the schools were placed in either "open" or "modified" categories.

Delaware—of 20 new schools, seven are "conventional."

Vermont—13 of 17 schools were placed in the "modified" category; none were "open."

Wyoming—only 5 of 23 schools were categorized as "conventional."

California—of 454 schools, only 16% are "conventional" and 42% of 304 elementary schools are totally "open."

South Dakota—all seven new high schools are "modified."

Washington—25 of 38 schools (66%) were either "open" or "modified."

Florida—60% of the elementary schools (49 of 81) were placed in the "open" category.

Generally two design features seem to differentiate between open-space as applied in elementary schools and in secondary schools:

1. While almost all of the instructional space within elementary schools is of open design, open-space is commonly limited to only portions of secondary schools (e.g., a social studies or English department "team teaching center").

2. The use of operable and/or demountable partitions in open instructional areas is much more common in secondary schools than in elementary schools. (The application and interpretation of state fire codes relative to fire spread controls and "defined corridors" influence the size, location and use of partitions in open-space instructional areas in most states.)

The state directors were asked to indicate what factors had influenced the change from conventional to open-space design in their states. While "changing educational concepts and practices" were cited as a basic cause, architects and educators were commonly placed in the position of "change agents." In states where a considerable number of open-space schools had been constructed or where state school planning services were readily available, "state department of education personnel" have been influential. This data is summarized in Table 3.

While "changing educational concepts and practices" is generally identified as a major influencing factor, it is noted that other less educationally-based factors were considered to be highly influential, e.g., architects and trends in other

states. Although the list of factors the various state planners reacted to is not complete, it does demonstrate the multiplicity of forces affecting the design and construction of open-space schools as seen from the state level.

TABLE 3.
PERCENT OF STATES INDICATING CERTAIN FACTORS
INFLUENCING OPEN-SPACE DESIGN*

Influencing Factor	Percent
Changing Educational Concepts and Practices	78
State Department of Education Personnel	68
Individual Architects	61
Individual Educators	61
Trends in other States	44
Consultants	37
College and University Professors	17
Increasing Construction Costs	17
Other	12

* 43 respondents.

Why Open-Space?

Over the years many reasons have been given to explain why standard size classrooms have been replaced by large open areas. Basically the evolution of open-space has been aided by analyzing the function of interior walls. For example, one of the first schools that had an "open" design was designed by the Houston architectural firm of Caudill, Rowlett and Scott in the early 1950's. Although part of the building plan, the walls separating the classrooms and corridors were left out when the building was constructed in an effort to reduce the costs of the project. According to architect John Rowlett, the decision was reached after an analysis of the educational program revealed that the absence of the walls would not hinder but might even improve the functional quality of the building.

Similar attempts to arrange the interior space of the school building into other than standard size classrooms were made throughout the 1950's and early 1960's as both theory and practice in education and architecture changed. As we have seen above, this trend has definitely increased throughout the nation and that at least at the state level, several factors are seen to influence the development of open-space schools. However, what are some of the more specific reasons why school districts are building open-space schools as opposed to schools with four-walled classrooms?

Questionnaires were sent to 30 superintendents of school districts with open-space schools. The superintendents were asked to indicate how important each of ten factors was in the development of the first open-space schools and the newest open-space school constructed in the district. They indicated how important each of the ten factors was by choosing from the following response categories: (1) a primary purpose, (2) a secondary purpose, (3) slightly important and (4) not considered. Each factor was assigned a weighted score—4 points for category 1 (primary purpose), 3 points for category 2 (secondary purpose), etc. A total score

was derived for each of the ten items and they were ranked in order of importance—the higher the score, the higher the rank.* In addition to the questionnaire, several superintendents were interviewed to gain greater insight into the reasons why their districts had adopted open-space planning.

The rank orders of the ten reasons for the first schools constructed and the newest schools constructed are presented in Table 4.

Table 4 shows that two of the most important reasons for the development of open-space schools have concerned those persons most directly involved in the educational process—students and teachers. The most important factor for both first and newest schools has been to bring about new pupil groupings in an effort to better meet individual student needs. The superintendents indicated a need existed to depart from the conventional 25–35 pupil classes and to create individual smaller group and large group instructional arrangements within grades and more flexible groupings across grade or age levels.

The second most important goal, and directly related to the first, has been to make better use of teacher competencies through cooperative planning and teaching arrangements. Many superintendents identified a need to involve the total staff in working to coordinate and use time and resources

more effectively. They indicated that the primary weakness of conventional buildings has been the inflexible, illogical arrangement of space into standard four-wall classrooms that have isolated the teachers and inhibited new approaches to grouping, staff utilization, and communication and curriculum organization. Thus, a primary purpose of open-space has been to increase the long-range capabilities of the building.

Another important factor, particularly in the newest schools, has been to develop and use new or innovative methods and materials aimed primarily at the individual student. Most superintendents indicated that developing a single experimental or innovative program was a long, slow and difficult process, and often undesirable. They would rather work at bringing about educational change in small steps and favored continual evaluation and change rather than the development of new, but often inflexible programs.

It is apparent there is considerable overlap in the list of items in Table 4 and overall, the priorities for open-space development have not undergone drastic change. Perhaps the entire process is best summed up by a superintendent whose district has pioneered open-space development: "We can verbalize more now but the reasons are about the same."

Influencing Open-Space

Each superintendent was also asked to indicate how influential various persons had been in influencing decisions to adopt open-space designs—for both the first and newest schools in the district. Three response categories were used: (1) most influential, (2) somewhat influential, and (3) least influential. Each response was assigned a weighted score from 3 (most influential) to 1 (least influential) and the scores were totaled and ranked similarly to those in Table 4. The rank orders are shown in Table 5.

In comparing persons who have influenced the development of the first and newest open-space schools, we see that superintendents perceive themselves and their district staff personnel to be most influential. It is interesting that the architect has been the second most influential person for the first schools, but are considered to be less influential for the newest schools; this was also true for board members. Districts first embarking upon open-space planning and construction face the dilemma of not having had previous experience and knowledge for guidance. Thus, the architect is often asked to provide "expert" assistance, although many architects designing a district's first open-space school have also not had prior experience with the open concept. Several architects who have had extensive experience in designing open-space schools indicated that school districts building their first open school often ask the architect to make major decisions about elements of the education program—grouping, team teaching, etc.—in addition to technical aspects such as lighting and acoustics.

Principals and teachers participate extensively in planning the newest schools. Superintendents report that persons working in existing open schools are not only given major roles in developing curriculum and staffing patterns, but they also

TABLE 4.

SUPERINTENDENTS' REASONS FOR ESTABLISHING THE FIRST AND NEWEST OPEN-SPACE SCHOOLS IN THEIR DISTRICTS, RANKED IN ORDER OF IMPORTANCE

Reason	Rank for First Open-Space School	Rank for Newest Open-Space School
To facilitate variable pupil grouping	1	1
To maximize individual teacher competencies	2	3
To provide long-range flexibility in school building	3	4
To try out various experimental or innovative techniques	4	2
To remedy weaknesses in conventional buildings	5	5
To change teaching styles	6	6
To accommodate a specific experimental or innovative program	7	7
To improve program coordination between various grade levels/departments	8	8
To use plans successful in other school districts	9	10
To reduce school construction costs	10	9

* For the purpose of comparing reasons for constructing the first and newest open schools, the questionnaires of 20 superintendents having at least two open-space schools in their districts were selected for analysis.

TABLE 5.
SUPERINTENDENTS' PERCEPTIONS OF PERSONS INFLUENCING
DECISIONS TO ADOPT OPEN-SPACE DESIGNS FOR FIRST AND
NEWEST SCHOOLS, RANKED ACCORDING TO DEGREE
OF INFLUENCE

Person or Group	Rank for First Open-Space School	Rank for Newest Open-Space School
District level administrators	1	1
Building Architect	2	5
School Board Members	3	4
Principals	4	2
Teachers	5	3
State Department Consultants	6	6
Private Consultants	7	8
College and University Professors/Researchers	8	9
Parents	9	7

work closely with the architect translating program requirements into space requirements. Thus, the architect is not placed in a position of having to decide how space is to be used (the educator's role).

Parents were also seen as being more influential in planning the newest schools. One reason can be attributed to changing philosophies about community participation in school decision-making. Superintendents have also seen the need to involve all persons who will be directly affected by an innovation such as open-space.

Programs in New Schools

Responses were also received from 95 principals of open-space schools as to the nature of the educational program in their school when it first opened. They could check one of four descriptions that best fit their situations: (1) a specific program that was different from conventional schools in the district; (2) a specific program different from conventional schools but still in the developmental stages; (3) elements of various programs but different from conventional schools in the district; and (4) a program similar to those in most schools in the district. The results are shown in Table 6.

Over 50% of the schools had a specific program in operation or under development distinctly different from the conventional schools in the district. Most of these schools were not the first open-space schools in their districts and were using the experience of earlier schools to develop new curriculum materials and equipment, new staff and student organizational plans, and new time allotments for instructional and staff planning. Generally these "specific programs" were built around nongrading instruction and used special teacher-made and "canned" curriculum materials (e.g., Individually Prescribed Instruction and Project PLAN). "Our goal," commented one principal, "is individualized and personalized education through nongrading, cooperative teaching, and multi-age grouping." It is emphasized here that many of these special programs had been under study and development for as long as three or four years prior to the opening of the new open-space facility.

Twenty-eight percent of the schools had various "elements" of programs differing from the conventional schools in the district when they opened. The most common of these "elements" was some form of team or cooperative staff organization. Another was some kind of flexible grouping plan or even cross-graded grouping. However, the programs in these schools when they opened were not oriented toward a special or "experimental" approach, but tended to basically follow and use the district's curriculum.

Another 17% of the principals indicated that when their open-space school opened, the program was similar to those in most schools in the district. For a multitude of reasons those schools did not formally embark upon any special staffing, grouping, or curriculum plan, but allowed the staff to proceed in various directions according to district policies and guidelines much like any other school.

"Why" open-space is a complex question to answer. Basically three general goals have emerged: (1) to better meet individual student needs through more sensitive grouping and instructional approaches; (2) to make better use of teacher time and talents through cooperative organization; and (3) to allow for immediate, short-range, and long-range changes in the organization and use of space. However, the development of open-space schools is beset with the major problem of translating such terms as "individualization," "nongrading," and "team teaching" into the concrete elements of people, space, time and materials—not to mention methods. Perhaps the problem was best expressed by one principal who said, "We had little planning time, some liberal philosophy, and confused direction."

TABLE 6.
EDUCATIONAL PROGRAM IN USE WHEN OPEN-SPACE SCHOOL
WAS FIRST OPENED, REPORTED BY 95 PRINCIPALS

Program	Percent of Schools
A specific program, different from conventional schools in the district	23%
A specific program but in the development stage	32%
Elements of various programs, different from conventional schools in the district	28%
A program similar to those in most schools in the district	17%

Concerns

Administrators and teachers associated with open-space schools commonly indicate that they face problems not usually encountered in conventional schools. Basically their concerns are related to the new attitudes, new behaviors, and new relationships that accompany efforts to change educational philosophy, organization and practices. Information was obtained from the superintendents and principals in our research sample as to what they perceived were problem areas unique to their open-space schools.

Superintendents' Concerns

The superintendents identified four general problem areas they considered as common to their open-space schools. First, the greatest concern was expressed for the teachers and principals in their schools. Over 80% of the superintendents indicated that teachers were ill-prepared to assume new and expanded decision-making responsibilities as members of teams; they were not trained or experienced in handling and understanding the complex interpersonal relationships, conflict, and communication patterns that are most important in a work group; that the demands were greatest for principals who had to learn new roles and techniques in working with staffs; and that school staffs needed experience and knowledge in how to organize and use space to effectively individualize instruction. The most urgent need for open-school staffs is intensive inservice training and pre-service training for both new teachers and experienced teachers before they first start to teach in open-space schools.

Secondly, the superintendents indicated that according to standardized tests, the academic achievement of students in open-space schools and conventional schools was equal, but that they observed fewer discipline problems, better social and emotional development, and increased decision-making and inquiry skills among students in open-space schools. Seventy-five percent expressed a need for (1) new methods to bring about better teacher-pupil and pupil-pupil relationships, and (2) new techniques and instruments to assess the quality of these relationships.

A third problem was community reaction toward open-space schools. Fifty-two percent of the superintendents indicated that they had experienced some difficulty with anti-open space feelings, and in some cases organized opposition from parents in the district. Much of the reaction can be attributed to what generally occurs when new concepts and innovations are introduced to replace long-lasting traditions. Many districts have used strong public information programs and increased community involvement to help increase understanding and support for the changes they are proposing. Some of the reaction has been caused by a lack of proper focus by teachers and administrators upon the philosophy, values, attitudes and goals underlying the development of the open-space schools. The confusion and conflict that sometime result is ultimately carried to the community-at-large.

The fourth area of concern is directly related to the first three. The superintendents believe that many of the problems they encounter can be avoided or solved by improving the planning process—to relate program requirements and building design more effectively; to increase the scope of the planning process to include long-range educational planning, staff training, and curriculum development; and to specifically identify the participants and their roles in the entire process.

Principals' Concerns

In contrast to the superintendents' concerns the principals were asked to indicate what were current problem areas for their schools. Their responses are summarized in Table 7.

The principals were highly selective in responding to the problem area items and did not reach as high a degree of consensus about common problems as the superintendents. However, they did concur with the superintendents in identifying teacher training as the most important problem.

Generally the most common training needs are those related to the new roles the teachers must assume as members of teams or work groups. For example, approximately 50% of the principals indicated there is a definite need to improve staff relationships through increased understanding and knowledge about communication process, interpersonal influence, and decision-making skills within the group. A need was also expressed for increased staff preparation and experience in handling expanded roles and responsibilities as planners and coordinators in addition to instructional duties. There was a common request for "more planning time" within the school day or week if teachers were to effectively handle their new roles.

Environmental characteristics, especially those related to acoustics, were a problem area identified by over 50% of the principals. Much of the concern is related to a school staff's first reaction to the new environment as evidenced by the fact that 62% of the principals of schools in their first or second year of operation indicated "environmental characteristics" as a problem area as compared to 36% of the principals of schools three or more years old. The problem of environmental characteristics, especially sound control, decreases as teachers establish norms for maximum noise levels and by not scheduling incompatible activities (e.g., music and reading) at the same time.

The organization and use of space is another common problem area that is associated with experience in open-space schools. The principals indicated a need to relate student grouping and instructional strategies to the total instructional space rather than organizing and utilizing open-space in "equivalent classroom" areas. One principal stated, "We have a considerable amount of space not being used. We have not been able, as a staff, to adequately and consistently use that space. Even so, some staff members feel that we are crowded."

Part of the space use problem is also related to a lack of

TABLE 7.
PERCENT OF PRINCIPALS INDICATING CERTAIN CHARACTERISTICS
AS CURRENT PROBLEM AREAS FOR THEIR SCHOOLS

<i>Problem Area</i>	<i>Percent</i>
Teacher training needs	60%
Psychological, acoustical and other environmental characteristics of open-space	52%
Staff-relationships—communication patterns, influence, decision-making responsibilities, etc.	48%
Space organization and utilization	44%
Lack of special curriculum materials	43%
Community reaction toward open-space	27%
Student reaction toward open-space	9%
Other	10%

special curriculum materials that would allow teachers to set up special interest and small group activities that are not tied down to one teacher or teaching station. Many of the principals felt that both the space and curriculum problems could be lessened if teachers were to become more knowledgeable about curriculum development and evaluation, the development and assessment of educational objectives, and the use of new instructional methods and media so that they can also become effective program developers and evaluators in addition to curriculum users.

Although only 27% of the principals saw community reaction as a problem, many of them noted that community relations were an important aspect of their new roles. Another

area "student reaction" was not seen to be highly important but work was needed in developing methods and instruments to more adequately identify student needs and to create special instructional strategies and environments for special students.

Perhaps the "concerns" that are commonly associated with open-space schools are not really unique, but just more visible. This was expressed by one principal in the following manner: "I consider all of these items to be significant but not unique to open area schools. I have a feeling that open areas 'smoke them out' into the open where they demand to be resolved. However, they are usually just as important for us to be concerned about in self-contained classrooms."

Number 1

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